Applied Regression Analysis

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Session 1

1

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Part 1:
Regression Setting

2

Course Structure

- Topics: **Lecture 1**
  - 1. Setting for regression   **Lecture 2**
  - 2. Simple linear regression
    - Interpretation of model
    - Inference
    - Transformations of variables   **Lecture 3**
  - 3. Multiple linear regression   **Lecture 4**
    - Interpretation of model
    - Adjustment for confounders
    - Gaining precision
    - FEV Example   **Lecture 5**
  - 4. Similarity to other regressions

3

Example: Smoking Effect on FEV

- Association between smoking and lung function in children
  - Long term smoking is associated with lower lung function
  - Are similar effects observed in short term smoking in children?

4

Example: Smoking Effect on FEV

- Scientific question
  - Does smoking lead to lower lung function in kids?
- Study design
  - 654 healthy children
  - Measure smoking by self report
  - Measure lung function by FEV
    - Forced expiratory volume: maximum volume of air that can be exhaled in 1 second

5